Abstract

The invention relates to a method for producing a buried tunnel junction (1) in a surface-emitting semi-conductor laser and to a laser of this type. Said laser comprises an active zone (5) containing a pn-junction, surrounded by a first n-doped semi-conductor layer (6) and at least one p-doped semi-conductor layer (3,4), in addition to a tunnel junction (1) on the p-side of the active zone (5), said tunnel junction bordering on a second n-doped semi-conductor layer (2). For burying the tunnel junction (1), the layer provided for the tunnel junction (1) is removed laterally in a first step using material-selective etching until the desired diameter is achieved and is heated in a second step in a suitable atmosphere until the etched region (1a) is sealed by a mass transport from at least one of the semi-conductor layers (2, 3) bordering on the tunnel junction (1). This enables surface-emitting laser diodes to be produced in high yields by simple technology, allowing the stabilization of the lateral single-mode operation and the high performance of the latter.

(Figure 7)